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EXAMINER	
ODOM, CURTIS B	

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4

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/531,996	MILLER ET AL.	
	Examiner	Art Unit	
	Curtis B. Odom	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 March 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-74* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-74* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 March 2000* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 73 and 74 are rejected under 35 U.S.C 101 because claim 73 recites the limitation "comprising a digital signal representing a received data burst". Note this signal merely consists consits of "1" and "0" which represent the signal. It does not fall into the category of a method, apparatus, product, or composition of matter. Therefore, the claims are rejected under 35 U.S.C 101 for being directed toward non-statutory subject matter.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 4-7, 9, 10, 14-17, 27, 28, 31-34, 36-38, and 42-45 are rejected under 35 U.S.C. 102(e) as being anticipated by Murai (U. S. Patent No. 5, 966, 377).

Regarding claim 1, Murai discloses in a single communication channel, a multiple access method comprising steps of:

receiving (Fig. 2A, block 10, column 14, lines 21-34) a data sequence to be transmitted, the data sequence comprising plural data symbols;

producing (Fig. 2A, block 20, column 21, lines 37-67) a spread signal by modulating a first spreading code onto the data sequence; and

transmitting (column 14, lines 50-54, antenna) the spread signal;

wherein the first spreading code spans a period of time which exceeds the time span of a data symbol (column 21, lines 12-25).

Regarding claim 4, which inherits the limitations of claim 1, Murai discloses providing a second spreading code and performing the steps of claim 1 for a plurality of transmissions, wherein some of the transmissions use the first spreading code and others of the transmissions use the second spreading code (column 1, lines 29-33), wherein different spread sequences are generated for different users.

Regarding claim 5, which inherits the limitations of claim 1, Murai discloses for some of the transmissions a first spreading gain is used and for others of the transmissions a second spreading gain is used (column 1, lines 24-35), wherein since the spreading gain depends on the spreading code, if different spreading codes are used, different spreading gains are also used pertaining to each spreading code.

Regarding claim 6, which inherits the limitations of claim 1, Murai discloses dividing the single communication channel (column 1, line 29-column 2, line 10 and column 14, lines 26-28) into plural sub-channels and performing the steps of claim 1 for each sub-channel.

Regarding claim 7, which inherits the limitations of claim 1, Murai discloses for some of the transmissions the data sequence is received at a first data rate and for others of the transmissions the data sequence is received at a second data rate (column 15, lines 15-26).

Regarding claim 9, Murai discloses in a single communication channel, a multiple access method comprising steps of:

providing (Fig. 2A, block 20, column 21, lines 37-67) a first spreading code;

receiving (Fig. 2A, block 10, column 14, lines 21-34) plural data sequences for transmission;

for at least one of the data sequences, generating (Fig. 2A, block 20, column 21, lines 37-67) a spread signal by modulating the data sequence with the first spreading code and transmitting (column 14, lines 50-54, antenna) the spread signal over the single communication channel;

wherein the first spreading code spans a period of time which exceeds the time span of a data symbol (column 21, lines 12-25).

Regarding claim 10, which inherits the limitations of claim 9, Murai discloses the data sequences originate from different users (column 1, lines 44-57).

Regarding claim 14, which inherits the limitations of claim 9, Murai discloses providing a second spreading code and, for at least one of the data sequences, generating a second spread

signal by modulating the data sequence with the second spreading code and transmitting the second spread signal (column 1, line 29-column 2, line 10).

Regarding claim 15, which inherits the limitations of claim 14, Murai discloses the first spreading code has a first spreading gain and the second spreading code has a second spreading gain (column 1, lines 24-35), wherein since the spreading gain depends on the spreading code, if different spreading codes are used, different spreading gains are also used pertaining to each spreading code.

Regarding claim 16, which inherits the limitations of claim 14, Murai discloses dividing the single communication channel into at least first and second sub-channels and transmitting the first spread signal over the first sub-channel and the second spread signal over the second sub-channel (column 1, line 29-column 2, line 10 and column 14, lines 26-28).

Regarding claim 17, which inherits the limitations of claim 9, Murai discloses receiving first data sequences having a first data rate and receiving second data sequence having a second data rate (column 15, lines 15-26).

Regarding claim 27, Murai discloses in a single data communication channel, a multiple access method comprising steps of:

receiving (Fig. 2A, block 10, column 14, lines 21-34) a data sequence to be transmitted, the data sequence comprising plural data symbols;

producing (Fig. 2A, block 20, column 21, lines 37-67) a spread signal by modulating a first spreading code onto the data sequence; and

transmitting (column 14, lines 50-54, antenna) the spread signal;

wherein the first spreading code does not repeat during the step of modulating the data sequence (column 21, lines 12-25), wherein since the length of the spreading code is longer than the length of the data sequence, the spreading code does not have to repeat.

Regarding claim 28, which inherits the limitations of claim 27, Murai discloses the data sequence spans a period of time that does not exceed a value T and the first spreading code spans a period of time exceeding T (column 21, lines 12-25).

Regarding claim 31, which inherits the limitations of claim 27, Murai discloses providing a second spreading code and performing the steps of claim 27 for a plurality of transmissions, wherein some of the transmissions use the first spreading code and others of the transmissions use the second spreading code (column 1, lines 29-33).

Regarding claim 32, which inherits the limitations of claim 27, Murai discloses for some of the transmissions a first spreading gain is used and for others of the transmissions a second spreading gain is used (column 1, lines 24-35), wherein since the spreading gain depends on the spreading code, if different spreading codes are used, different spreading gains are also used pertaining to each spreading code.

Regarding claim 33, which inherits the limitations of claim 27, Murai discloses dividing the single communication channel (column 1, line 29-column 2, line 10 and column 14, lines 26-28) into plural sub-channels and performing the steps of claim 27 for each sub-channel.

Regarding claim 34, which inherits the limitations of claim 27, Murai discloses for some of the transmissions the data sequence is received at a first data rate and for others of the transmissions the data sequence is received at a second data rate (column 15, lines 15-26

Regarding claim 36, Murai discloses in a single communication channel, a multiple access method comprising steps of:

providing (Fig. 2A, block 20, column 21, lines 37-67) a first spreading code;

receiving (Fig. 2A, block 10, column 14, lines 21-34) plural data sequences for transmission;

producing (Fig. 2A, block 20, column 21, lines 37-67) plural spread signals by modulating the data sequence with the first spreading code, wherein the first spreading code does not repeat during the step of modulating (column 21, lines 12-25), wherein since the length of the spreading code is longer than the length of the data sequence, the spreading code does not have to repeat; and

transmitting (column 14, lines 50-54, antenna) the spread signal over the single communication channel.

Regarding claim 37, which inherits the limitations of claim 36, Murai discloses the data sequences originate from different users (column 1, lines 44-57).

Regarding claim 38, which inherits the limitations of claim 36, Murai discloses each data sequence comrprises at most N bits and wherein the first spreading gain comprises at least N x g chips, where g is the processing gain (column 1, lines 19-28).

Regarding claim 42, which inherits the limitations of claim 36, Murai discloses providing a second spreading code, wherein the step of producing plural spread signals includes modulating some of the data sequences with the second spreading code (column 1, lines 29-33), wherein different spread sequences are generated for different users.

Regarding claim 43, which inherits the limitations of claim 42, Murai discloses the first spreading code has a first spreading gain and the second spreading code has a second spreading gain (column 1, lines 24-35), wherein since the spreading gain depends on the spreading code, if different spreading codes are used, different spreading gains are also used pertaining to each spreading code.

Regarding claim 44, which inherits the limitations of claim 42, Murai discloses dividing the single communication channel into at least first and second sub-channels and transmitting the first spread signal over the first sub-channel and the second spread signal over the second sub-channel (column 1, line 29-column 2, line 10 and column 14, lines 26-28).

Regarding claim 45, which inherits the limitations of claim 36, Murai discloses receiving first data sequences having a first data rate and receiving second data sequences having a second data rate (column 15, lines 15-26).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims are 8, 18, 19, 23-26, 35, 46-48, 51-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murai (U. S. Patent No. 5, 966, 377).

Regarding claim 8, which inherits the limitations of claim 1, Murai does not disclose receiving transmissions from a base station that uses paired carrier multiple access signaling. However, Murai does disclose receiving transmissions from a base station which uses multiple access signaling (column 1, lines 29-63). Therefore, it would have been obvious to one skilled in the art at the time the invention was made that the type of multiple access signaling used is deemed a design choice and does not constitute patentability.

Regarding claim 18, the claimed method includes features corresponding to subject matter mentioned in the above rejection of claim 8.

Regarding claim 19, Murai discloses discloses in a single communication channel, a multiple access method comprising steps of:

providing (Fig. 2A, block 20, column 21, lines 37-67) a first spreading code;

receiving (Fig. 2A, block 10, column 14, lines 21-34) plural data sequences for transmission;

for at least one of the data sequences, generating (Fig. 2A, block 20, column 21, lines 37-67) a spread signal by modulating the data sequence with the first spreading code and transmitting (column 14, lines 50-54, antenna) the spread signal over the single communication channel;

wherein the first spreading code spans a period of time which exceeds the time span of a data symbol (column 21, lines 12-25).

Murai does not disclose implementing this method in plural transmitters using an identical spreading code in each transmitter. However, it would have been obvious to one skilled in the art at the time the invention was made that this method could have been provided in a

plurality of transmitters using an identical spreading code in the same manner at which it is implemented in the single transmitter. Providing this method in a plurality of transmitters would increase the capacity of a network/system and would allow for multiple access capability throughout the network/system which would reduce interference and multipath fading the in the network/system.

Regarding claim 22, which inherits the limitations of claim 19, Murai discloses discloses in a single communication channel, a multiple access method comprising steps of:

providing (Fig. 2A, block 20, column 21, lines 37-67) a first spreading code;

receiving (Fig. 2A, block 10, column 14, lines 21-34) plural data sequences for transmission;

for at least one of the data sequences, generating (Fig. 2A, block 20, column 21, lines 37-67) a spread signal by modulating the data sequence with the first spreading code and transmitting (column 14, lines 50-54, antenna) the spread signal over the single communication channel;

wherein the first spreading code spans a period of time which exceeds the time span of a data symbol (column 21, lines 12-25).

Murai does not disclose implementing this method into plural additional transmitters using a second spreading code for each of the additional transmitters. However, Murai does disclose using different spreading codes for different users (column 1, lines 29-33). Therefore, it would have been obvious to one skilled in the art at the time the invention was made that this method could have been provided in a plurality of additional transmitters using a second identical spreading code in the same manner at which it is implemented in the single transmitter.

Providing this method in a plurality of transmitters would increase the capacity of a network/system and would allow for multiple access capability throughout the network/system which would reduce interference and multipath fading the in the network/system.

Regarding claims 23 and 24, the claimed method includes features corresponding to subject matter mentioned in the above rejection of claims 15 and 17 which is applicable hereto.

Regarding claim 25, which inherits the limitations of claim 19, Murai discloses

dividing (column 1, line 29-column 2, line 10 and column 14, lines 26-28) the single communication channel into at least two subchannels;

providing a second spreading code (column 1, lines 29-33), wherein a different spreading code is provided for each subchannel/user; and

generating (Fig. 2A, block 20, column 21, lines 37-67) a spread signal by modulating the data sequence with the second spreading code and transmitting (column 14, lines 50-54, antenna) the spread signal over one of the subchannels.

Murai does not disclose this method is implemented in plural additional transmitters using an identical second spreading code. However, it would have been obvious to one skilled in the art at the time the invention was made that this method could have been provided in a plurality of additional transmitters using a second identical spreading code in the same manner at which it is implemented in the single transmitter. Providing this method in a plurality of transmitters would increase the capacity of a network/system and would allow for multiple access capability throughout the network/system which would reduce interference and multipath fading the in the network/system.

Regarding claim 26, the claimed method includes features corresponding to subject matter mentioned in the above rejection of claim 8.

Regarding claim 35, the claimed method includes features corresponding to subject matter mentioned in the above rejection of claim 8.

Regarding claim 46, the claimed method includes features corresponding to subject matter mentioned in the above rejection of claim 8.

Regarding claim 47, Murai discloses in a single communication channel, a multiple access method comprising steps of:

providing (Fig. 2A, block 20, column 21, lines 37-67) a first spreading code;

receiving (Fig. 2A, block 10, column 14, lines 21-34) plural data sequences for transmission;

producing (Fig. 2A, block 20, column 21, lines 37-67) plural spread signals by modulating the data sequence with the first spreading code, wherein the first spreading code does not repeat during the step of modulating (column 21, lines 12-25), wherein since the length of the spreading code is longer than the length of the data sequence, the spreading code does not have to repeat; and

transmitting (column 14, lines 50-54, antenna) the spread signal over the single communication channel.

Murai does not disclose implementing this method in plural transmitters using an identical spreading code in each transmitter. However, it would have been obvious to one skilled in the art at the time the invention was made that this method could have been provided in a plurality of transmitters using an identical spreading code in the same manner at which it is

implemented in the single transmitter. Providing this method in a plurality of transmitters would increase the capacity of a network/system and would allow for multiple access capability throughout the network/system which would reduce interference and multipath fading the in the network/system.

Regarding claim 48, which inherits the limitations of claim 47, Murai discloses the first spreading code spans a period of time which exceeds the time span of the longest data sequence in any of the transmitters (column 21, lines 12-25).

Regarding claim 51, the claimed method includes features corresponding to subject matter mentioned in the above rejection of claim 22 which is applicable hereto.

Regarding claims 52 and 53, the claimed method includes features corresponding to subject matter mentioned in the above rejection of claims 15 and 17 which is applicable hereto.

Regarding claim 54, the claimed method includes features corresponding to subject matter mentioned in the above rejection of claim 25 which is applicable hereto.

Regarding claim 55, the claimed method includes features corresponding to subject matter mentioned in the above rejection of claim 8.

6. Claims 73 and 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al. (U.S. Patent No. 6, 037, 835).

Regarding claim 73, Smith et al. discloses in a system for providing multiple access over a single communication channel, a receiver comprising:

a preamble detection component (Fig. 1, blocks 102 and 104, column 4, lines 13-28), the data signal further being fed to the preamble detection component, the preamble detection component configured to detect preambles using a first spreading code (modulation code);

plural demodulation circuits (Fig. 1, blocks 110-112, column 4, lines 61-67) configured to produce a data stream from data received;

a selection component (Fig. 1, block 108, column 4, lines 35-60) operatively coupled to the preamble detection component, the selection component configured to select an available demodulation circuit,

wherein one of the demodulation circuits operates on data in response to control signals issued by the preamble detection component and by the selection component, so that multiple signals received by the preamble detection component can be concurrently processed by selected ones of the demodulation circuits.

Smith et al. does not disclose a data bus for which the digital signal is fed and a control bus. However, Smith et al. does disclose the demodulator receives the signal from the receiver through a connection and all the components of the demodulator are coupled together (column 3, lines 42-59). Therefore, it would have been obvious to one skilled in the art at the time the invention was made that the connection between the receiver and demodulator could have been a data bus and the connection between the components of the demodulator could have been implemented as control bus. The buses would transfer data between the components of the receiver/demodulator in the same manner as the connections used by Smith et al. Thus using buses to transfer data is deemed a design choice and does not constitute patentability.

With regards to the limitation of claim 73 which recites "comprising a digital signal representing a received data burst" and all references to the data burst throughout the claim, see the 35 U.S.C 101 rejection above.

Regarding claim 74, which inherits the limitations of claim 73, Smith et al. discloses plural additional preamble detection components, each configured to detect preambles using a spreading code (modulation code) different from the spreading code of the other preamble detection components, each coupled to receive the data signal, each coupled to the selection component (Fig. 1, blocks 102-104, column 4, lines 13-28).

7. Claims 2, 3, 11-13, 20, 21, 29, 30, 39-41, 49, and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murai (U.S. Patent No. 5, 966, 377) in view of Mahany (U.S. Patent No. 6, 018, 555).

Regarding claim 2, Murai discloses all the limitations of claim 2, (see rejection of claim 1) except the step of transmitting includes providing a preamble data sequence and modulating the preamble data sequence with a first preamble spreading code to produce a spread preamble signal.

However, Mahany discloses transmitting including providing a preamble data sequence and modulating the preamble data sequence with a first preamble spreading code to produce a spread preamble signal (column 9, lines 34-60). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the method of Murai with the preamble teachings of Mahany since the preamble would allow for adaptive equalization and maximum ratio combining at the receiver because these techniques generally benefit from training during the preamble period (Mahany, column 3, line 59-column 4, line 3).

Regarding claim 3, which inherit the limitations of claim 2, Murai does not disclose the step of transmitting includes providing a second preamble data sequence and modulating the

second preamble data sequence with a second preamble spreading code to produce a spread preamble signal.

However, Mahany discloses transmitting including providing a second preamble data sequence (second preamble portion) and modulating the preamble data sequence with a second preamble spreading code to produce a spread preamble signal (column 9, lines 34-60). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the method of Murai with the preamble teachings of Mahany since the preamble would allow for adaptive equalization and maximum ratio combining at the receiver because these techniques generally benefit from training during the preamble period (Mahany, column 3, line 59-column 4, line 3).

Regarding claims 11 and 12, the claimed method includes features corresponding to subject matter mentioned in the above rejection of claims 2 and 3 which is applicable hereto.

Regarding claim 13, Murai and Mahany do not disclose repeating the first preamble spreading code one or more times. However, it would have been obvious to one skilled in the art that the first preamble spreading code would be repeated if the spreading code were shorter than a data symbol of the data sequence. The spreading code could also be repeated for future transmissions. Thus claim 13 does not constitute patentability.

Regarding claims 20 and 21, the claimed method includes features corresponding to subject matter mentioned in the above rejection of claims 2 and 3 which is applicable hereto.

Regarding claims 29 and 30, the claimed method includes features corresponding to subject matter mentioned in the above rejection of claims 2 and 3 which is applicable hereto

Regarding claims 39 and 40, the claimed method includes features corresponding to subject matter mentioned in the above rejection of claims 2 and 3 which is applicable hereto

Regarding claims 41, the claimed method includes features corresponding to subject matter mentioned in the above rejection of claim 13 which is applicable hereto.

Regarding claims 49 and 50, the claimed method includes features corresponding to subject matter mentioned in the above rejection of claims 2 and 3 which is applicable hereto.

8. Claims 56, 57, 60-66, and 69-72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murai (U.S. Patent No. 5, 966, 377) in view of Umeda et al. (U.S. Patent No. 5, 581, 547).

Regarding claim 56, Murai discloses in a system for providing multiple access over a single communication channel, a transmitter comprising:

an input (Fig. 2A, block 10, column 14, lines 21-34) component configured to receive plural data sequences;

a processing component (Fig. 2A, block 20, column 21, lines 37-67) configured to modulate the data sequence with the first spreading code to produce a spread signal, wherein the first spreading code comprises more than g chips, where g is the processing gain (column 1, lines 19-28 and column 21, lines 12-25); and

a transmission component (column 14, lines 50-54, antenna) configured to transmit the spread signal.

However, Murai does not disclose a memory store configured to contain a first spreading code and transmitting the spread signal as a burst.

Wildauer et al. discloses a system for providing multiple access over a single communication channel comprising a memory store (column 7, lines 12-18, code book) configured to contain a first spreading code and transmitting spread signals as bursts (column 2, lines 34-43).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the device of Murai with the teachings of Wildauer since a spreading code memory would allow immediate access to multiple users/channels which would increase the rate processing spread spectrum signals in the device. Transmitting signals as bursts as taught by Wildauer et al. is well known in the art and deemed a design choice which does not constitute patentability.

Regarding claim 57, which inherits the limitations of claim 56, Murai discloses the data sequences each comprise at most N bits and the first spreading code comprises more than N x g chips (column 21, lines 12-25).

Regarding claim 60, which inherits the limitations of claim 56, Murai discloses modulating data sequences with either a first on second spreading code (column 1, lines 29-33), wherein a different spreading code is provided for each subchannel/user. Murai does not disclose a memory store configured to contain a first and second spreading code.

Wildauer et al. discloses a system for providing multiple access over a single communication channel comprising a memory store (column 7, lines 12-18, code book) configured to contain a first and second spreading code. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the device of Murai with the teachings of Wildauer since a spreading code memory would allow immediate access to

multiple users/channels which would increase the rate processing spread spectrum signals in the device.

Regarding claim 61, the claimed device includes features corresponding to subject matter mentioned in the above rejection of claim 48 which is applicable hereto.

Regarding claims 62 and 63, the claimed method includes features corresponding to subject matter mentioned in the above rejection of claims 15 and 17 which is applicable hereto.

Regarding claim 64, the claimed method includes features corresponding to subject matter mentioned in the above rejection of claim 8.

Regarding claim 65, Murai discloses a system for providing multiple access over a single communication channel, comprising:

a base station (column 1, lines 17-19); and

plural transmitters (Fig. 2A, column 1, lines 17-19, wherein a transmitters is contained in each mobile station) each configured to transmit data to the base station in an asynchronous manner,

each transmitter configured to:

receive (Fig. 2A, block 10, column 14, lines 21-34) a data sequence of at most N bits in length;

modulate (Fig. 2A, block 20, column 21, lines 37-67) the data sequence with the spreading code to produce a spread signal, whrerein the spreading code comprises more than g chips, where g is the processing gain (column 1, lines 19-28 and column 21, lines 12-25); and

transmit (column 14, lines 50-54, antenna) the spread signal.

However, Murai does not disclose containing a spreading code and transmitting the spread signal as a burst.

Wildauer et al. discloses a system for providing multiple access over a single communication channel comprising a memory store (column 7, lines 12-18, code book) configured to contain a spreading code and transmitting spread signals as bursts (column 2, lines 34-43).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the method of Murai with the teachings of Wildauer since a spreading code memory would allow immediate access to multiple users/channels which would increase the rate processing spread spectrum signals in the device. Transmitting signals as bursts as taught by Wildauer et al. is well known in the art and deemed a design choice which does not constitute patentability.

Regarding claim 66, which inherits the limitations of claim 65, Murai discloses the spreading code comprises more that N x g chips (column 1, lines 19-28 and column 21, lines 12-25).

Regarding claim 69, Murai discloses each transmitter is configured to receive the data sequence at a first data rate (Fig. 2A, block 10, column 14, lines 21-34) but does not disclose the system including plural additional transmitters, wherein each transmitter is configured to receive data sequences at a second data rate different from the first data rate. However, Murai does disclose the transmitters can receive information at different data rates. Therefore, it would have been obvious to one skilled in the art that if there were plural additional transmitters (see

rejection of claims 19 and 22), these transmitters could receive data sequences at a second data rate.

Regarding claim 70, which inherits the limitations of claim 69, Murai discloses the transmitters and base stations (Figs. 2A and 2B) are not configured to perform chip alignment or bit alignment.

Regarding claim 71, which inherits the limitations of claim 65, Murai discloses the base station is not configured with a multi-user detection component (Fig. 2B.)

Regarding claim 72, the claimed method includes features corresponding to subject matter mentioned in the above rejection of claim 8.

9. Claims 58, 59, 67 and 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murai (U.S. Patent No. 5, 966, 377) in view of Umeda et al. (U.S. Patent No. 5, 581, 547) and in further view of Mahany (U.S. Patent No. 6, 018, 555).

Regarding claim 58, which inherits the limitations of claim 56, Murai and Umeda et al. disclose all the limitation of claim 58 (see previous rejection of claim 56) except for the memory containing a preamble and a preamble spreading code and the processing component is further configured to modulate the data preamble with the preamble spreading code.

However, Mahany discloses transmitting including providing a preamble data sequence and modulating the preamble data sequence with a first preamble spreading code to produce a spread preamble signal (column 9, lines 34-60). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the device of Murai and Umeda et al. with the preamble teachings of Mahany and contain a preamble and preamble spreading code in memory since the preamble would allow for adaptive equalization and maximum ratio

combining at the receiver because these techniques generally benefit from training during the preamble period (Mahany, column 3, line 59-column 4, line 3).

Regarding claim 59, which inherits the limitation of claim 58, Murai, Umeda et al., and Mahany do not disclose modulating the data preamble sequence with the preamble spreading code by repeating the preamble spreading code one or more times. However, it would have been obvious to one skilled in the art that the preamble spreading code would be repeated if the spreading code were shorter than a data symbol of the data sequence. The spreading code could also be repeated for future transmissions. Thus claim 13 does not constitute patentability.

Regarding claims 67 and 68, the claimed device includes features corresponding to subject matter mentioned in the above rejection of claims 58 and 59 which is applicable hereto

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Suanga (U.S. Patent No. 6, 381, 233) discloses a multiple access system wherein the spreading code is longer than the data sequence.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Curtis B. Odom whose telephone number is 703-305-4097. The examiner can normally be reached on Monday- Friday, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone numbers for the

organization where this application or proceeding is assigned are 709-872-9306 for regular communications and 703-872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Curtis Odom
December 11, 2003

STEPHEN CHIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600